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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,917	12/14/2004	Hubert Cecile Martens	NL020573US	8862

24737 7590 03/26/2010
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

HEYI, HENOK G

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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03/26/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,917	Applicant(s) MARTENS ET AL.	
	Examiner HENOK G. HEYI	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/16/2009 have been fully considered but they are not persuasive. Applicant argues that there is no apparent reason in the prior art for one skilled in the art to suggest a multi-stack optical data storage medium having the particular groove recited in independent claim 1, namely a groove having a depth G_{L0} of $25\text{nm} < G_{L0} < 40\text{nm}$ and width of $W_{L0} < 350\text{nm}$. However, as applicant noted in his remarks, Usami teaches a pre-groove having a depth of 20 to 100nm which includes the range that was claimed. Additionally, Nishiuchi teaches on col 20 lines 59-60 a pit width of 300nm which is below 350nm that was claimed in claim 1. Therefore, the combined teaching of Usami and Nishiuchi makes the claimed invention an obvious variant of what has been already known in the art.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishiuchi et al. 5,764,619 (Nishiuchi hereinafter) in view of Usami US 2002/0006105 (Usami hereinafter).

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Regarding claim 1, Nishiuchi teaches a multi-stack optical data storage medium (recording medium according to this embodiment has two information layers, col 13 line 52) for recording and reading using a focused radiation beam entering through an entrance face of the medium during recording and reading (recording and reproducing, col 13 line 60), comprising: a first substrate having, on a side thereof: a first recording stack L0, comprising a recordable type L0 recording layer comprising a dye (organic coloring matter, a leuco dye, such as triphenylmethane or the like may be employed, col 14 lines 64-66), and formed in a first L0 guide groove, and a first reflective layer present between the L0 recording layer and the first substrate (guide grooves formed on a first substrate formed a first information layer formed by a thin film, col 11 line 7+), a second substrate having, on a side thereof: a second recording stack L1 comprising a recordable type L1 recording layer, said second recording stack being at a position closer to the entrance face than the L0 recording stack and formed in a second L1 guide groove (guide grooves formed on a second substrate formed a second information layer formed by a thin film, col 11 line 18+); and a transparent spacer layer sandwiched between the first and second recording stacks (there is formed a transparent separation layer between the first information layer and the second information layer, col 11 line 24+), said transparent spacer layer having a thickness substantially larger than the depth of focus of the focused radiation beam (the thickness of the separation layer be set to a value larger than twice the focal depth, col 16 line 6-12) wherein the first L0 guide groove has a depth G_{L0} in the range $25\text{nm} < G_{L0} < 40\text{nm}$ and the first reflective layer comprises a metal and has a thickness $> 50\text{ nm}$ (a metal formed into a thin

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reflective film having thickness of 40nm to 200nm, col 14 line 34) but Nishiuchi fails to teach that the first L0 guide groove has a depth in the claimed range.

However, Usami teaches the depth of the pre-groove is preferably from 20 to 100nm (see para [0009]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the recording layer of Nishiuchi to include a dye material while keeping the depth of the groove between 25 and 40nm. The modification would have been obvious because of the benefit of excellent recording sensitivity and controlling recording properties like jitter, as taught by Usami (see para [0008]). Further, discovery of an optimum value for a known process, in this case, optimization of ranges, is obvious engineering. Please see *In re Aller*, 105 USPQ 233 (CCPA 1955).

Regarding claim 4, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein the recordable type L0 recording layer has a thickness between 70nm and 150nm measured on the land portion of the guide groove (Having a thickness of 90nm).

Regarding claim 5, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a dielectric layer present at a side of the L0 recording layer opposite from the side where the first reflective layer is present (the double layer structure may be a structure including a dielectric material layer/a recording layer, a structure including

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a recording layer/a reflecting layer or a structure including a reflecting layer/a recording layer in the forgoing sequential order, col 15 line 18-24).

Regarding claim 6, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 5, wherein the dielectric layer has a thickness in the range of 5nm – 120nm (a dielectric layer having a thickness of 30nm, col 46 line17).

Regarding claim 7, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein said multi-stack optical data storage medium further comprises a second reflective layer comprising a metal is present at a side of the L0 recording layer opposite from the side where the first reflective layer present (a structure including a first reflecting layer/a dielectric material layer/a recording layer/a dielectric material layer/a reflecting layer when viewed from the substrate, col 15 line 32-35).

Regarding claim 8, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer has a thickness in the range of 5nm - 15nm (a semitransparent reflecting layer having a thickness of 14nm, col 46 line33).

Regarding claim 9, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 7, wherein the second reflective layer mainly comprises a metal selected from the group of Ag, Au, Cu, Al (the thin film reflective layer is made of a material selected from a group consisting of metal, such as Au, Al, Cu or their alloys, col 13 line 62-67).

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Regarding claim 10, Nishiuchi teaches the multi-stack optical data storage medium as claimed in claim 1, wherein the effective reflection level of the stacks is at least 0.18 at a radiation beam wavelength of approximately 655 nm (reflectance of the information layer at a wavelength of 680nm is 17%, col 45 line 22 also look at col 18 line 1-8).

Regarding claim 12, Nishiuchi and Usami disclose a multi-stack optical data storage medium comprising all the limitations of claim 1 as discussed above, but fail to explicitly disclose a modulation M of 75% and a reflection level of 70% being obtained. However, the claim recitations would have been obvious to one skilled in the art through routine experimentation and no unexpected result would be obtained.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK G. HEYI whose telephone number is (571)270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Henok G Heyi/
Examiner, Art Unit 2627

/Daniell L. Negrón/
Primary Examiner, Art Unit 2627
March 25, 2010